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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/758,668	01/11/2001	Fred L. Starkey	1981/637	9539

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EXAMINER
GOINS, DAVETTA WOODS

ART UNIT	PAPER NUMBER
2632	11

DATE MAILED: 07/15/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/758,668	STARKEY, FRED L.	
	Examiner	Art Unit	
	Davetta W. Goins	2632	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *27 May 2003* .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-23* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-23* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 1-6, and 11-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Geschke et al. (US Pat. 5,661,651) in view of Derbyshire et al. (US Pat. 6,271,748 B1).

In reference to claims 1-5, 11, 12, 13, 16-20, Geschke discloses the claimed plurality of tire monitors associated with wheels of a vehicle, each tire monitor including a transmitter configured to transmit tire data at a transmission frequency chosen to the characteristic frequency response of the tire; and a receiver configured to receive the tire data, which is met by a wireless vehicle parameter monitoring system 10 including a sensor with transmitter circuit 20 attached to each wheel of the vehicle; the transmitter circuits 20_0-20_n transmit an RF signal having a carrier frequency falling within at least "one predefined" frequency range centered at or about nominal frequencies f_0-f_n (previously identified frequencies) (col. 3, lines 8-53). The sensor and transmitter 20 are used to monitor the pressure inside a vehicle's tire. A bandpass filter 42 is used having a center frequency equal to the nominal frequency f_{NOM} transmitted from at least one of parameter sensor and transmitter circuits 20_0-20_n. The bandpass filter 42 preferably has bandwidth of $2\Delta f$ corresponding to the range of frequencies (previously identified passband of frequencies) that VCO 22 may output when a parameter level, such as the tire pressure, is low

(col. 4, lines 23-40). Although Geschke does not specifically disclose the claimed each wheel including a tire having a characteristic frequency response, he does disclose a transmitter that will transmit an RF signal of a frequency falling within at least "on predefined" frequency. Derbyshire discloses a tyre condition monitoring system, which determines during manufacture, through a calibration procedure, will determine the pressure/temperature that the complete wheel unit can withstand (col. 10, lines 45-67; col. 11, lines 29-47). The output "characteristics" of the thermistor are known and predictable which enables a temperature value to be determined directly from the signal output from the thermistor. The temperature information the microcontroller uses equations to determine from the signal output from the pressure sensor a pressure value that will be transmitted to the receiver unit the actual temperature value (col. 13, lines 28-47). Since Geschke discloses that a signal having a previously identified frequency, pertaining to a signal that will be transmitted based on the tire's condition, it would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate the teaching of determining characteristic frequency response, as disclosed by Derbyshire, as well as including pass band frequencies and attenuation band frequencies that are associated with the characteristic frequency to ensure that tire monitor will only transmit a signal that will be received by a receiving unit as well as ensure that the detector determines whether the tire's pressure falls within a previously determined pressure and frequencies associated with the pressure that will ensure hat the pressure relates specifically to that wheel and therefore prevent false alarms that could take place otherwise.

In reference to claim 6, although Geschke does not specifically disclose the claimed tire having a previously determined characteristic frequency response including one identified attenuation band and one identified passband, the characteristic frequency response related to the structure of the tire, the transmission frequency chosen to be in one passband, he does disclose bandpass filter 42 is used having a center frequency equal to the nominal frequency f_{NOM} transmitted from at least one of parameter sensor and transmitter circuits 20_0-20_n. The bandpass filter 42 preferably has bandwidth of $2\Delta f$ corresponding to the range of frequencies (previously identified passband of frequencies) that VCO 22 may output when a parameter level, such as the tire pressure, is low (col. 4, lines 23-40). Derbyshire discloses a tyre condition monitoring system, which determines during manufacture, through a calibration procedure, will determine the pressure/temperature that the complete wheel unit can withstand (col. 10, lines 45-67; col. 11, lines 29-47). The output "characteristics" of the thermistor are known and predictable which enables a temperature value to be determined directly from the signal output from the thermistor. The temperature information the microcontroller uses equations to determine from the signal output from the pressure sensor a pressure value that will be transmitted to the receiver unit the actual temperature value (col. 13, lines 28-47). Since Geschke discloses that a signal having a previously identified frequency, pertaining to a signal that will be transmitted based on the tire's condition, it would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate the teaching of determining characteristic frequency response, as disclosed by Derbyshire, as well as including pass band frequencies and attenuation band frequencies that are associated with the characteristic frequency to ensure that tire monitor will only transmit a signal that will be received by a receiving unit as well as ensure that the detector

determines whether the tire's pressure falls within a previously determined pressure and frequencies associated with the pressure that will ensure hat the pressure relates specifically to that wheel and therefore prevent false alarms that could take place otherwise.

In reference to claim 14, Geschke discloses the claimed demodulation of the radio carrier signal to recover the tire data, which is met by the resulting mixed signal is provided to a bandpass filter that passes a demodulated signal through to microcontroller 144 (col. 7, lines 53-67).

In reference to claim 15, Geschke discloses the claimed method of transmitting the radio carrier signal at a predetermined transmission power, which is met by each wheel of the vehicle; the transmitter circuits 20_0-20_n transmit an RF signal having a carrier frequency falling within at least "one predefined"(previously determined characteristic) frequency range centered at or about nominal frequencies f_0-f_n (previously identified frequencies) (col. 3, lines 8-53).

3. Claims 7-10 and 21-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Geschke et al. in view of Derbyshire et al. as applied to claim 6 above, and further in view of Konchin et al. (US Pat. 6,362,732 B1).

In reference to claims 7, 8, although Geschke does not disclose the claimed metallic strands of a predetermined length defining in part the characteristic frequency of the tire, he does disclose that each wheel of the vehicle includes a sensor and transmitter 20 used to monitor the pressure inside a vehicle's tire (col. 3, lines 8-53). Konchin discloses a tire pressure sensing device that includes two inductors 374 and 376 and a thin strip of metal 382; by changing the position of the

strip of metal 382, in the mutual "electromagnetic field" of the two inductors, the field configuration can be changed resulting in stronger or weaker coupling effects between the inductors. Therefore, the thin strip of metal may be sued to increase or decrease the "electro-magnetic" coupling between the inductors 374 and 376 to tune up the receiver 370 "during the manufacturing process" of the receiver 370 to compensate for tolerance effects (col. 19, lines 46-67). Since Geschke discloses a sensor for each tire of the vehicle, it would have been obvious to one of ordinary skill in the art to provide metallic strands of a predetermined length defining in part the characteristic frequency of the tire, as disclosed by Konchin, with the system's of Geschke in view of Derbyshire, to ensure that a correct pressure reading will be determined and transmitted to the receiving unit once it's been effected by the electromagnetic field which could erroneously provide an inaccurate pressure signal.

In reference to claims 9, 10, although Geschke does not disclose the claimed transmitter configured to transmit frequencies greater than 600 MHz or a range from 800 MHz to 1000 MHz, he does disclose transmitting a frequency from the tire in which the signal is between 1 MHz and 3 MHz (col. 7, lines 53-67; col. 8, lines 1-9). Since Geschke discloses a sensor for each wheel transmitting various frequencies that are received by a receiving unit, it would have been obvious to one of ordinary skill in the art to use any frequency wanted to prevent interference from any other transmitted signals within the vehicle.

In reference to claims 21-23, Geschke discloses the claimed respective wheel of the vehicle, the tire having a previously determined frequency response, each respective tire monitor including a

respective tire data sensor, and a respective radio transmitter coupled with the tire data sensor, and a receiver configured to detect the transmitted energy, which is met by a wireless vehicle parameter monitoring system 10 including a sensor with transmitter circuit 20 attached to each wheel of the vehicle; the transmitter circuits 20_0-20_n transmit an RF signal having a carrier frequency falling within at least "one predefined" frequency range centered at or about nominal frequencies f_0-f_n (previously identified frequencies) (col. 3, lines 8-53). The sensor and transmitter 20 are used to monitor the pressure inside a vehicle's tire. A bandpass filter 42 is used having a center frequency equal to the nominal frequency f_{NOM} transmitted from at least one of parameter sensor and transmitter circuits 20_0-20_n. The bandpass filter 42 preferably has bandwidth of $2\Delta f$ corresponding to the range of frequencies (previously identified passband of frequencies) that VCO 22 may output when a parameter level, such as the tire pressure, is low (col. 4, lines 23-40). Although Geschke does not specifically disclose the claimed each wheel including a tire having a characteristic frequency response, he does disclose a transmitter that will transmit an RF signal of a frequency falling within at least "on predefined" frequency. Derbyshire discloses a tyre condition monitoring system, which determines during manufacture, through a calibration procedure, will determine the pressure/temperature that the complete wheel unit can withstand (col. 10, lines 45-67; col. 11, lines 29-47). The output "characteristics" of the thermistor are known and predictable which enables a temperature value to be determined directly from the signal output from the thermistor. The temperature information the microcontroller uses equations to determine from the signal output from the pressure sensor a pressure value that will be transmitted to the receiver unit the actual temperature value (col. 13, lines 28-47). Konchin discloses a tire pressure sensing device that includes two inductors 374

and 376 and a thin strip of metal 382; by changing the position of the strip of metal 382, in the mutual "electromagnetic field" of the two inductors, the field configuration can be changed resulting in stronger or weaker coupling effects between the inductors. Therefore, the thin strip of metal may be sued to increase or decrease the "electro-magnetic" coupling between the inductors 374 and 376 to tune up the receiver 370 "during the manufacturing process" of the receiver 370 to compensate for tolerance effects (col. 19, lines 46-67). Since Geschke discloses a sensor for each tire of the vehicle, it would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate the teaching of determining characteristic frequency response, as disclosed by Derbyshire, as well as including passband frequencies and attenuation band frequencies that are associated with the characteristic frequency and to provide metallic strands of a predetermined length defining in part the characteristic frequency of the tire, as disclosed by Konchin, with the system's of Geschke, to ensure that tire monitor will only transmit a signal that will be received by a receiving unit as well as ensure that the detector determines whether the tire's pressure falls within a previously determined pressure and frequencies associated with the pressure that will ensure hat the pressure relates specifically to that wheel and therefore prevent false alarms that could take place once it's been effected by the electromagnetic field which could erroneously provide an inaccurate pressure signal.

4. Applicant's arguments with respect to claims 1-20 have been considered but are moot in view of the new ground(s) of rejection.

5. Applicant's arguments with respect to claims 1-23 have been considered but are moot in view of the new ground(s) of rejection.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Davetta W. Goins whose telephone number is 703-306-2761. The examiner can normally be reached on Mon-Fri with every other Fri. off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Daniel Wu can be reached on 703-308-6730. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9314 for regular communications and 703-872-9314 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-305-7666.

Davetta W. Goins
Art Unit 2632

Davetta W Goins

D.W.G.
July 10, 2003